



Customer Presentation (Enhancement)

MX150 MID-VOLTAGE CONNECTORS

NEW PRODUCT RELEASE (REVISION)

This solution enables customers to upgrade their automotive electrical systems confidently with a mid-voltage product, built upon the trusted MX150 connector design, that seamlessly integrates into existing vehicle infrastructures.

NPI ENHANCEMENT | JANUARY 2024

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MX150 MID-VOLTAGE CONNECTORS

MX150 Mid-Voltage Connectors have been designed to meet the growing demand within the automotive industry for 48-volt electrical systems. Based on the proven MX150 design, these connectors provide a reliable and field-tested solution for mid-voltage connectivity requirements within the transportation industry.

Key Product Information

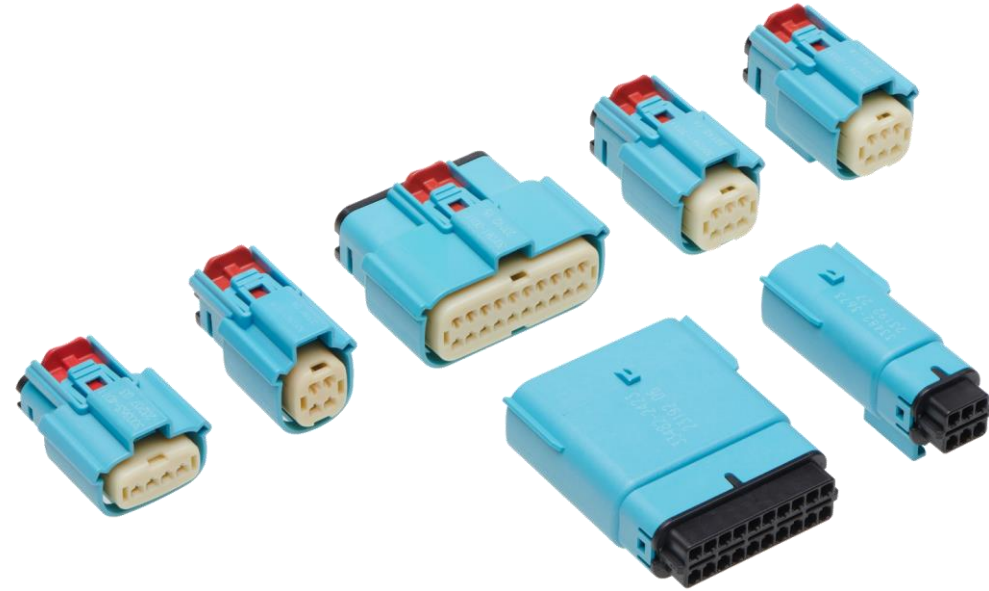
Category: Transportation wire-to-wire/wire-to-board connectors

Standards: USCAR-2, USCAR-21 and GMW3191 certification

Voltage: Up to 60V

Terminal Size: 1.50mm; 2.80 and 6.30mm available with hybrid options

Configurations: Single- and dual-row configurations



[View Product Landing Page](#)

[Download Datasheet](#)

Series

- | | |
|--------|--|
| 33482 | MX150 Mid-Voltage Dual-Row Blade Connectors |
| 300361 | MX150 Mid-Voltage Dual-Row Receptacles |
| 300363 | MX150 Mid-Voltage Single-Row Receptacles |

Additional MX150 mid-voltage connectors, receptacles and headers in development –contact Molex for design assistance

VITAL PRODUCT INFORMATION



What makes this product different from the competition?

The MX150 Mid-Voltage Connector stands out among other 1.50mm-terminal mid-voltage connectors for its exceptional features and capabilities. It distinguishes itself by sharing a proven form factor with field-proven low-voltage connectors while also providing an impressive 48V capability and a remarkable current capacity of up to 22.0A.

How does this product/solution create value for our customers?

Modern cars use more power, thanks to more infotainment, advanced driver assistance systems (ADAS) and climate control. Upgrading to 48V wiring permits manufacturers to use smaller wire, lowering copper usage and reducing weight. MX150 Mid-Voltage Connectors help enable this upgrade.

What is the Molex Advantage?

Deep expertise in automotive industry challenges and requirements gives Molex engineers a collaborative mindset and the knowledge to create next-generation solutions that optimize electronics architecture.

PRODUCT OVERVIEW

Efficient Automotive Upgrade Capability

MX150 Mid-Voltage Connectors enable automotive manufacturers to upgrade to 48V wiring architecture with minimal design engineering work by employing the proven MX150 form factor. This 48V upgrade capability offers significant cost and weight savings by reducing wiring size in a variety of in-vehicle applications.



MARKETS AND APPLICATIONS



Lighting



Battery Controllers



Jet Skis

Automotive

- Electric motor generators
- E-chargers
- Inverters
- Battery controllers
- Power distribution boxes
- AC/DC converters
- Braking system components
- Water pumps
- Lighting

Commercial Vehicles

- Golf carts
- Jet skis
- Electric outboard motors
- Forklifts
- Lawn mowers
- Electric scooters
- Motorized wheelchairs

Electrical and Power

- Solar energy storage systems (commercial and residential)
- Portable power stations
- Home generators
- Rechargeable battery applications

SOLVING INDUSTRY CHALLENGES

Industry Need	Industry Challenge	Industry Solution	Anticipated Results
Mid-voltage capability with a proven connector	Customers are looking for a reliable, robust and proven connector design to use for 48V wiring applications.	MX150 Mid-Voltage Connectors use the proven MX150 design, upgraded for a voltage rating of up to 60V.	Engineers can use the proven MX150 connector to upgrade to 48V wiring architecture while minimizing additional design engineering and validation work.

PRODUCT ADVANTAGES AND FEATURES

Enables use with upgraded 48V wiring for applications such as lighting, power windows or wiper motors
adding capability to upgrade existing 12V automotive wiring to 48V without changing connector type

Permits straightforward upgrade from existing MX150 connectors and reduces engineering costs when upgrading to 48V wiring
by using the same package size and housing design as proven MX150 connectors

Helps eliminate accidental disconnection between connectors
with connector position assurance (CPA) options that are available

Ensures crimped terminal leads are properly locked in place
due to a housing featuring preassembled terminal position assurance (TPA)

Reduces package size and eliminates the need for individual cable seals
by using mat seal technology

Protects mat seal and helps ensure proper alignment of the terminals
with design incorporating a grommet cap

Meets stringent automotive industry requirements
conforming to IEC 60664-1 specification and with USCAR-2, USCAR-21 and GMW3191 certification

Key Specifications	
Circuit Sizes Offered	Single row: 4 Double row: 4, 6, 20
Voltage	Up to 60V
Connector Types	Wire-to-wire, wire-to-board
Color Offered	Light blue
Industry Interfaces	USCAR-2, USCAR-21 and GMW3191
Operating Temperatures	-40 to +125°C
Other Features	Mat seal, TPA, CPA and custom void patterns available



SPECIFICATIONS AND SUPPORTING INFORMATION

Reference Information

MX150 Mid-Voltage Part Series:
Dual-Row Blade Connectors: 33482
Dual-Row Receptacles: 300361
Single-Row Receptacles: 300363
Packaging Design: Bulk pack
Designed in: Millimeters
Use With Terminals:
Receptacles: Part No. 33012-0002
Blades: Part No. 33000-0001
Cavity Plugs: Part No. 34345-0001

Electrical

Voltage (max.): 60V
Current (max.): 22.0A (for MX150 terminals)
Contact Resistance: 8 milliohms
Dielectric Withstanding Voltage (min.): 1,500V AC
Insulation Resistance (min.): 100 Megohms

Mechanical/Electrical/Sealing

Durability: 8 milliohms max. at 10 cycles
Sealing: USCAR-2 Sealing Class 2

Physical

Housing: Nylon 40% glass filled
TPA: Nylon 40% glass filled
Wire Gauge for MX150 Terminals:
ISO Wire: 0.35 to 1.50mm²
SAE Wire: 22 to 14 AWG
Operating Temperatures: -40 to +125°C

Additional Resources

Web Overview Page	https://www.molex.com/en-us/products/automotive-connectivity/automotive-pcb-wire-connectors/mx150-connectors
Datasheet	987651-0761.pdf (molex.com)
Global Product Manager	Priteesh Deshpande, TSBU, TIS

UNIQUE AND USEFUL DIFFERENTIATION VS. COMPETITORS' PRODUCTS

	Molex MX150 Sealed Connectors	Competitor's 1.50mm Terminal Sealed Connector
Voltage (max.)	60V	~14V
Circuit Counts	Rated up to 14V: 2, 3, 4, 5, 6, 8, 12, 16, 20 Rated up to 60V: 4, 6, 20	2, 3, 4, 6, 8, 10, 12, 16
Industry Interfaces	USCAR-2, USCAR-21 and GMW3191	USCAR
Operating Temperatures	-40 to +125°C	-40 to +125°C

WHAT IS THE MOLEX ADVANTAGE?

MX150 is the only automotive connector of its type that combines versatile low-voltage options and a rugged, sealed connector design with a range of mid-voltage capable connectors (MX150 Mid-Voltage) that supports 48V applications and applications up to 60V. When upgrading from 12V to 48V wiring, MX150 Mid-Voltage Connectors enable manufacturers to reduce engineering and design costs by utilizing the proven and robust MX150 form factor. This permits the transition to higher-voltage 48V wiring architecture, with its reduction in copper usage and weight through the use of smaller wire sizes, while minimizing the need for additional engineering time and costs.



THANK YOU

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